

HUMAN FACTORS BRIEFING

Afloat Directorate



Agenda

What are Human **Factors? Human Factor Categories Sample Application Human Factors Statistics** Future Efforts



Mishap Reduction Readiness Through Safety Current Methods

- Leadership
- Training
- Policies
- Modernization
- Operational Risk
 Management



New Reduction Method

Develop a human error framework around which mishap investigations and intervention programs can be developed.



Where do we usually look to prevent mishaps?





Operating

Environment

Stress and Fatigue Equipment

Design and

Layout

Crew Coordination Supervisory Support

Time Pressure

Corporate
Culture



Where should we look to prevent mishaps?

THE OPERATING ENVIRONMENT

ions ditions conditions conditions

Unsafe Acts





Human Factors Analysis and Classification System



Putting the Pieces

Ogether

Level I/ II Human Factors

- Unsafe Acts
 - Errors
 - Violations
- Unsafe Supervision
 - Inadequate Supervision
 - Supervisor Violations
- Unsafe Crew Conditions
 - Medical
 - Crew Resource
 - **Management**
- Organizational Influences
 - External
 - Internal





Errors

Violations

Unsa fe cts





Human Factors, Part

2

Unsafe Supervision

<mark>I</mark>nadequat<mark>e</mark> Supervision

Supervis or Violatio ns









Human Factors, Part 3

Unsafe Crew Conditions



Crew Resource Managem



Human Factors, Part 4





Steps in HFACS Analysis

- Identify human factors
- Develop intervention strategies
- Implement solutions
- Monitor and reevaluate





Summary

In this hypothetical example, a Navy ship collides with another vessel on a nearly reciprocal heading while: transiting a high density traffic area, normal underway watch set, at night, speed 25 knots.



Overview

The mishap investigation board, in this hypothetical mishap, found that failure of the Commanding Officer and key subordinates to implement and adhere to established procedures contributed to the collision.



Causes

Most probable factors in this hypothetical mishap are:

- The OOD was not properly prepared mentally or physically for watch
- The OOD did not acknowledge CIC's recommendations
- CIC did not request the OOD acknowledge their recommendation
- Voccal's avenesiva spand at



Human Cause Factors

The OOD was not properly prepared mentally or physically for watch:

- Level I Unsafe Crew Condition
- Level II Medical



Human Cause Factors, Pai

The OOD did not acknowledge CIC's recommendations:

- Level I Unsafe Supervision
- Level II Inadequate Supervision



Human Cause Factors, Par

CIC did not request the OOD acknowledge their recommendation

- Level I Organizational Influences
- Level II Internal



Human Cause Factors, Par

Vessel's excessive speed at night in a high density traffic area:

- Level I Unsafe Act
- Level II Error



Summary of results

CIC did not request acknowledgement of the Crew Condition of the Condition

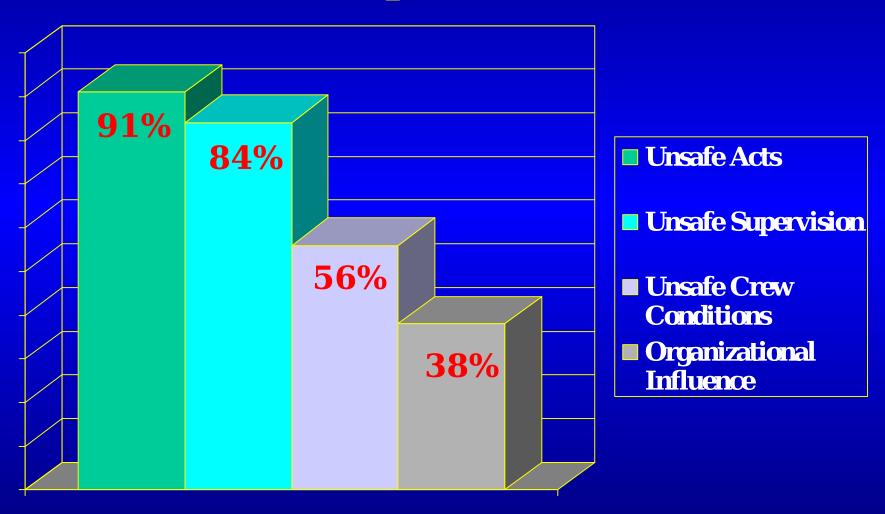
Acts

Failed or Absent Defenses



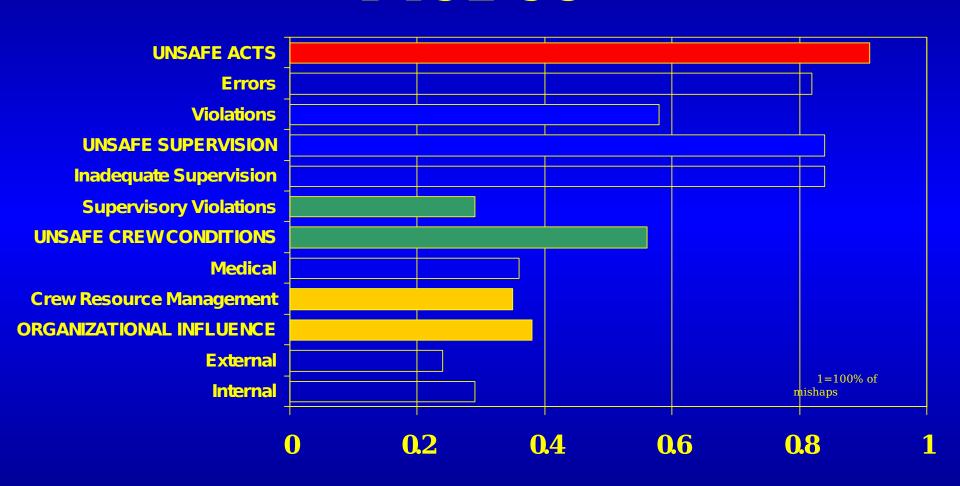


Human Factors in Class A Mishaps, FY 92-98





Human Factors, Class A's FY92-98





INTERVENTION

Safe Organizational **Influences**

Safe

Supervision

Safe Crew

Conditions

Safe Acts

FILLIN G THE **HOLES** IN THE **CHEESE**



Safe Operations



Interventions

The OOD was not properly prepared mentally or physically for watch:

Level I - Unsafe Crew Condition

POSSIBLE INTERVIENTION STRATEGY:

Training and Enforcement of standards

09/11/16



Interventions, Part 2

The OOD did not acknowledge CIC's recommendations:

Level I - Unsafe Supervision

POSSABILETINITERVENATION STRATEFGISion

Bridge & CIC team training



Interventions, Part 3

CIC did not request the OOD acknowledge their recommendation

- Level I Organizational Influences
- Level II Internal POSSIBLE INTERVENTION STRATE Bridge & CIC team training



Interventions, Part 4

Vessel's excessive speed at night in a high density traffic area:

- Level I Unsafe Act
- Level II Error

POSSIBLE INTERVENTION STRATEGY:

Speed Restrictions imposed by Fleet 6 Commanders



Future Plan

- Revise OPNAVINST 5100.19C
- Revise Mishap Investigation Handbook
- Train shipboard personnel to identify causal factors in all mishap reports
- Develop intervention strategies for key causal factors and implement



HFACS Summary

- Comprehensive framework for mishap investigations, current and previous
- Identifies human causal factors
- ► Indicates intervention strategies

FEWER MISHAPS